

SUSHMITA MITRA

HAG Professor • Machine Intelligence Unit • Indian Statistical Institute, Kolkata

Fellow: IEEE • TWAS • INSA • IASc • IAPR • INAE • NASI • AAIA

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Date of Birth: 19th December, 1962

RESEARCH AREAS OF INTEREST

Data science, Artificial intelligence, Soft computing, Machine learning, Medical imaging, Multimedia data mining, Bioinformatics.

ACADEMIC QUALIFICATIONS

- **Ph.D. (Computer Science)**, Indian Statistical Institute (ISI), Calcutta, 1995.
Thesis: *Neuro-Fuzzy Models for Classification and Rule Generation*.
- **M.Tech. (Computer Science)**, University of Calcutta, 1989. First Class. *Stood First in order of Merit*.
- **B.Tech. (Computer Science)**, University of Calcutta, 1987. First Class. *Stood First in order of Merit*.
- **B.Sc. (Physics Honours)**, Presidency College, University of Calcutta, 1984. First Class. Stood Seventh in order of Merit.

POSITIONS HELD

- **HAG Professor**, Machine Intelligence Unit, Indian Statistical Institute, Kolkata, 1st July 2018 to date.
- **INAE Chair Professor**, 2018–2020.
- **Head** of Machine Intelligence Unit, Indian Statistical Institute, Kolkata: August 02, 2010 to December 31, 2012; July 18, 2014 to August 14, 2014; February 06, 2017 to May 07, 2017; August 01, 2017 to August 04, 2019.
- **Professor** at Machine Intelligence Unit, Indian Statistical Institute, Calcutta, 1st June 2001 to 30th June 2018.
- **Visiting Professor** at Electrical & Computer Engineering Dept., University of Alberta, Edmonton, Canada in 2007, 2004 (on leave from ISI).
- **Visiting Professor** at Computer Science Dept., Meiji University, Kawasaki, Japan in 2016, 2015, 2007, 2005, 2004, 1999 (on leave from ISI).
- **Visiting Professor** at Dept. of Computer Science and Engineering, Aalborg University, Esbjerg, Denmark in 2003, 2002 (on leave from ISI).

- **Associate Professor** at Machine Intelligence Unit, Indian Statistical Institute, Calcutta, 1st June 1995 to 31st May 2001.
- **Guest Lecturer** at Computer Science Dept. and Radiophysics & Electronics Dept., University of Calcutta, 2001–2003.
- **Programmer** at Machine Intelligence Unit, Indian Statistical Institute, Calcutta, March 1993 to 31st May 1995.
- **Research Fellow** under a *German Academic Exchange Service (DAAD)* Program at the *RWTH Technical University* and the *European Laboratory of Intelligent Techniques Engineering (ELITE)*, Aachen, Germany from November 1992 to March 1994 with *Prof. H.-J. Zimmermann* (on leave from ISI).
- **Programmer** at Electronics & Communication Science Unit, Indian Statistical Institute, Calcutta, 1st November 1991 to March 1993.
- **Senior Research Fellow (SRF)**, May 1989 to October 1991, Indian Statistical Institute, Calcutta.

AWARDS AND RECOGNITION

Prestigious Fellowships and Lectureships

- **J. C. Bose Research Grant**, Anusandhan National Research Foundation, 2026-2031.
- **J. C. Bose National Fellowship**, Science & Engineering Research Board, Dept. of Science and Technology, 2021-2026.
- **Fulbright-Nehru Academic and Professional Excellence Fellowship** (Flex Award), 2018–2020.
- **INAE Chair Professor**, 2018–2020.
- **Distinguished Lecturer** for IEEE Computational Intelligence Society, 2014–2016, 2019–2022, 2025–2027.

Elected Fellowships

- *Fellow* of The World Academy of Sciences (TWAS), 2022.
- *Fellow* of the Asia-Pacific Artificial Intelligence Association (AAIA), 2021
→ International Academy of Artificial Intelligence Sciences (AAIS), 2026
- *Fellow* of the Indian Academy of Sciences (IASc), 2024.
- *Fellow* of the Indian National Science Academy (INSA), 2019.
- *Fellow* of the International Association of Pattern Recognition (IAPR), 2017.
- *Fellow* of the IEEE, 2012.
- *Fellow* of The National Academy of Sciences, India, 2008.
- *Fellow* of Indian National Academy of Engineering, 2007.

Awards

- Recipient of **IEEE Transactions on Neural Networks Outstanding Paper Award** from IEEE in 1994.
- Recipient of **University Gold Medal** from University of Calcutta, for standing first in order of merit in M.Tech. Computer Science, 1989.

Featured in Notable Publications

- Listed in *Women Shaping Scientific Frontiers: From Lab Coats to Leadership*, A. Sharma and K. S. Harshitha (Eds.), Indian National Science Academy, 2024, ISBN 978-81-939482-7-9.
- Listed in *Women Engineers of India*, Vol. I, P. Ghosh (Ed.), Indian National Academy of Engineering, pp.

92–93, 2022, ISBN 978-81-7480-362-7.

- Listed in *A Braided River: The Universe of Indian Women in Science*, C. Coley and C. Gresse, UNESCO New Delhi, pp. 21, 2022, ISBN 978-81-89218-82-9.
- Listed in *The Mind of an Engineer*, P. Ghosh and B. Raj (Eds.), Indian National Academy of Engineering, pp. 261–266, 2016, ISBN 978-981-10-0118-5.
- Listed in *Lilavati's Daughters: The Women Scientists of India*, R. Godbole and R. Ramaswamy (Eds.), Indian Academy of Sciences, Bangalore, pp. 196–197, 2008, ISBN 978-81-8465-005-1.

Scholarships

- Recipient of *CIMPA-INRIA-UNESCO fellowship* from International Centre for Pure and Applied Mathematics, France, 1996.
- Recipient of *DAAD Fellowship* from German Academic Exchange Service, 1992–1994.
- Recipient of *GATE Fellowship* from University Grants Commission (UGC), India, 1987–1989.
- Recipient of *National Talent Search Scholarship* from NCERT, India, 1978–1986.

PROJECTS UNDERTAKEN (AT ISI)

- **Principal Investigator** from ISI on “Design and Development of an AI-Based Portable Electrical Impedance Tomography (EIT) System for Respiratory Function Studies Using Machine Learning Techniques”, INR 97.14862 lakhs, funded by the Department of Science and Technology (DST), 2021–2024.
- **Principal Investigator** from ISI on “Artificial Intelligence for Affordable Screening and Prediction of Diabetic Retinopathy in the Framework of Big Data”, INR 272.23224 lakhs, funded by the Department of BioTechnology (DBT), 2021–2024.
- **Co-Principal Investigator** from ISI on “Distributed Cognitive System for Healthcare”, under the Consortium Project “Development of Application oriented AI Systems”, INR 132.55 lakhs, funded by Ministry of Electronics and Information Technology (MeitY), 2020–2023.
- **Principal Investigator** in the project “Deep Learning for Handling Imbalance in Diabetic Retinopathy”, a gift by Intel, USA, 2018 (USD 8070).
- **Indian Investigator** in the International Collaborative Research Project “Development of Extremely High Accuracy Rule Extraction Algorithm from Big Data and Wide Areas Applications”, funded by Meiji University, Japan, 2014–2017 (Japanese Yen 6 million).
- **Principal Investigator** in the Indian Statistical Institute – University of Maastricht Joint Programme, for a University of Maastricht funded project “RADIOMICS: Biomedical Imaging and Machine Learning for Cancer Research”, 2011–2015 (Euro 16,000).
- **Co-Principal Investigator** in a Silicogene, TCG funded project on “Soft Computing in Chemogenomics”, 2003–2004.
- **Principal Investigator** in a CSIR project on “Knowledge-based connectionist data mining system: Design and applications”, 2002–2006.
- **Co-Investigator** in the DST funded Center for Soft Computing Research: A National Facility, 2005–2015.
- **Principal Investigator** in a project on “Neuro-Fuzzy Computing” under the *Supraregional Material and Equipment Programme for Universities in Developing Countries* from the *Deutsche Gesellschaft fuer Technische Zusammenarbeit (GTZ) GMBH*, 1996–1998.
- **Co-Investigator** in a CSIR project entitled “Cancer management in soft computing paradigm”, 1998–2001.

DETAILS OF TEACHING

Courses Taught

- Image Processing I, **M.Tech. (CS), ISI**, Semester 1, 2022–2025.
- Data Mining, **M.Tech. (CS) II, ISI**, Semester 1, 2006–2010, 2013, 2016–2019.
- Computer Systems I (OS & Architecture), **M.Tech. (CrS) I, ISI**, Semester 1, 2021.
- Artificial Intelligence and Expert Systems, **M.Tech. (CS) II, ISI**, Semester 1, 2002–2004.
- Operating Systems, **M.Tech. (CS) I, ISI**, Semester 2, 2003–2004.
- Software Engineering, **M.Tech. (CS) II, ISI**, Semester 1, 1998–2000; **M.Tech. (QROR) II, ISI**, Semester 1, 2005–2006.
- Neural Networks and Applications, **M.Tech. (CS) II, ISI**, Semester 2, 1995–1997, 2001.
- Data Structures and Programming, **M.Tech. (CS) I, ISI**, Semester 1, 1994.
- Data Mining, **Certificate Course on Machine Intelligence and Soft Computing, Center for Soft Computing, ISI**, 2007–2009.
- Artificial Neural Networks, **Department of Computer Science, Meiji University, Japan**, 1999.
- Data Mining, **Department of Computer Science, Aalborg University, Esbjerg, Denmark**, 2002.
- Pattern Recognition, **M.Tech. Computer Science, University of Calcutta**, 2002.
- Artificial Intelligence and Neural Networks, **B.Tech. Radio Physics and Electronics, University of Calcutta**, 2001–2003.
- Machine Learning, **B.Tech. Information Technology, University of Calcutta**, 2002–2003.
- Soft Computing, **B.Tech. Computer Science, University of Calcutta**, 2002–2003.
- Data Mining, **B.Tech. Information Technology, University of Calcutta**, 2002–2004.

Mentoring of International Students

- Kazeem Adesina Dauda, Kwara State University, Nigeria, C. V. Raman International Fellowship, 2017.

Guidance of Ph.D. Students

1. Kalyani Mali, *Modeling of Heterogeneous Data in Data Mining*, 2005 (JU).
2. Bashirahmad Fardin Momin, *Some Issues in Data Mining Using Soft Computing*, 2008 (JU).
3. Haider Banka, *Soft Computing in Machine Learning and Bioinformatics*, 2008 (JU).
4. Sampreeti Ghosh, *Mining Gene Expression Data Using Domain Knowledge*, 2013 (JU).
5. Ranajit Das, *Some Issues in Gene Regulation and Evaluation*, 2014 (ISI).
6. Partha Pratim Kundu, *Some Issues in Unsupervised Feature Selection Using Similarity*, 2015 (ISI).
7. Subhashis Banerjee, *On The Detection and Analysis of Tumor Regions from MR Images*, 2021 (CU).
8. Shouvik Chakraborty, *Design and Implementation of Intelligent Systems for Biomedical Image Analysis*, 2023 (KU).
9. Surochita Pal, *On Automated Analysis of Lung Images with Deep Learning for Healthcare*, 2025 (ISI).
10. Pallabi Dutta, *Exploring Resource-Efficient Deep Learning for Medical Image Segmentation*, 2026 (ISI).
11. Mousumi Sardar, *Some Biometric Studies on Using Iris Patterns* (CU). [Ongoing]
12. Ritaban Kirtania, *Machine Learning of Imbalanced Data* (CU). [Ongoing]
13. Shramana Dey (ISI). [Ongoing]
14. Riddhasree Bhattacharyya (CU). [Ongoing]

15. Anubhab Maity (CU). [Ongoing]

Students and Teachers Mentored with National Academy Fellowships

1. Dr. H. Banka, Faculty, Indian School of Mines, Dhanbad, 2008, INAE.
2. Mr. B. Barman, NIT Surat, 2008, INAE.
3. Ms. S. Golui, NIT Durgapur, 2011, INAE.
4. Bandi Abhitej Anoop John, NIT Warangal, 2010, IASc-INSa-NASI.
5. Sreeja Golui, NIT Durgapur, 2010, IASc-INSa-NASI.
6. Divya Hariharan, Madras Institute of Technology, 2010, IASc-INSa-NASI.
7. Ritesh Singh, IIIT Allahabad, 2010, IASc-INSa-NASI.
8. Vignesh Jagadeesan, Anna University, 2012, IASc-INSa-NASI.
9. Soham Mandal, Institute of Engineering & Management, 2015, NNMCB.
10. Gourab Chowdhury, IIIT Bhubaneswar, 2015, INAE.
11. Anmol Sharma, DAV Institute of Engineering and Technology, Jalandhar, 2016, INAE.
12. Gaurav Gupta, Institute of Engineering & Management, Kolkata, 2018, INAE.
13. Unneta Chatterjee, University of Calcutta, 2024, INAE.
14. Soham Mitra, Kalyani Govt. Engg. College, 2024, INAE.

Recently Supervised M.Tech. Dissertations

1. Mr. Soham Chatterjee, ISI, 2022.
2. Mr. Akhil Agrawal, *Detecting anemia from retinal images using deep learning*, ISI, 2021.
3. Mr. Gurdit Singh Bedi, *Deep learning for risk group prediction in COVID-19 using lung CT*, ISI, 2021.
4. Mr. Naveen Ojha, *Intracranial hemorrhage detection*, ISI, 2020.
5. Mr. Sourav Aich, *Deep attention model for Diabetic Retinopathy grading*, ISI, 2019.
6. Mr. Sangeet Jaiswal, *Machine learning in Diabetic Retinopathy*, ISI, 2019.
7. Mr. Love Varshney, *Handling class imbalance in medical data-sets*, ISI, 2019.
8. Mr. Manohar Mukku, *Evolving deep neural networks*, ISI, 2019.
9. Mr. Munendra Singh, *Classification of diabetic retinopathy stages using deep learning*, ISI, 2018.
10. Mr. Soham Mandal, *On Classification of the Severity of Diabetic Retinopathy using Transfer Learning*, IIST Howrah, 2018.
11. Mr. Mohit Singhaniya, *CNN for Brain Tumor Segmentation*, ISI, 2017.
12. Ms. Rituparna Roy, *Machine Learning in Brain MRI*, University of Calcutta, 2016.
13. Ms. Oiendril Basu, *Quantitative Feature Analysis in Brain MRI*, University of Calcutta, 2016.
14. Mr. Janardan Mishra, ISI, 2002.
15. Dr. Kishori M. Konwar, *Fuzzy ID3*, ISI, 2000.
16. Mr. Pawan K. Singal, ISI, 1999.

Recently Supervised B.Tech. Dissertations

1. Ms. Saumya Bhadani, *Brain Tumor Delineation from 3D MR Images using Single Seed*, DAAICT Ahmedabad, 2017.
2. Mr. Anmol Sharma, *Tumor Detection in Multimodal Brain MR Images using Deep Convolutional Neural Networks*, DAV Institute of Engineering & Technology, Jalandhar, 2016.
3. Mr. Soham Mandal, *FuCEE: A Fuzzy Histogram Based Image Enhancement Algorithm for Low Exposed*

Images, Institute of Engineering & Management, Kolkata, 2016.

4. Mr. Bishal Barman, NIT Suratkal, 2007.

5. Dr. Sugata Banerji, IIIT, 2005.

DETAILS OF ACADEMIC ADMINISTRATION (IN ISI)

- Serving as Chairperson, Internal Complaints Committee, Indian Statistical Institute, Kolkata, from 2024 to date.
- Served as Chairperson, Promotional Review Committee for Scientific Technical Workers, 2020.
- Served as Chairperson, Committee to evaluate the performance of SRFs of CCSD, 2018.
- Served as Chairperson, Committee to formulate policy regarding sponsorship of candidates to the M.Tech(CS), M.Tech(QROR), M.Tech(CrS) and M.S.(QMS) programmes of the institute, 2018.
- Served as Chairperson, Admission Committee, Post-Graduate Diploma in Computer Applications, 2017.
- Served as Chairperson, Committee for suggesting guidelines regarding interpretation and applicability of different government acts, rules and regulations, on topics involving the Accounts department, 2015–2017.
- Served as Chairperson, Committee for judging best dissertation of M.Tech. (CS), 2014.
- Served as Head, Machine Intelligence Unit, August 2010 to December 2012; July 18, 2014 to August 14, 2014; February 01 to April 30, 2017; August 2017 to July 2019.
- Served as Convener, Committee for short-listing for new faculty recruitment, CCSD, 2011.
- Served as Member of panel of internal moderators of the Institute, 2014–2015.
- Served as Member of Ph.D.-D.Sc. Committee, CCSD, 2017–2019.
- Served as Member of Review Committee for Technical workers of Scientific Divisions, 2012–2017.
- Served as Member of Selection Committee for Chief Librarian and Deputy Librarian, ISI, 2017–2018.
- Served as Member of Review Committee for Administrative Officer, Accounts Officer and Section Officers, 2018.
- Served as Convener, Research Fellow Advisory Committee, CCSD, 2005–2010; Member, 2011–2012.
- Served as Member of Editorial Board, from CCSD, in charge of Annual Report, 2009–2010.
- Served as Member of Provident Fund Committee, 2008–2012.
- Served in JRF / M.Tech. Selection Committees in 2006, 2009, 2011, 2012, 2015, 2017.
- Served as Convener, CS Subcommittee, M.Tech. (CS), for several years.

INVITED LECTURES DELIVERED ABROAD

- **Keynote talk** on “Artificial intelligence in healthcare”, at 11th International Conference on Artificial Intelligence and Engineering Management (ICAIEM 2026), Guangzhou, China, June 26, 2026.
- **Invited seminar** on “Harnessing artificial intelligence for healthcare”, *IEEE CIS France Chapter*, October 28, 2025.
- **Invited talk** on “Artificial intelligence in healthcare”, at Workshop on Advances and Challenges in AI, IITIS-PAN & Polish Academy of Sciences, Paris, October 27, 2025.
- **Invited talk** on “Harnessing artificial intelligence for healthcare”, at University of Massachusetts at Amherst, USA, September 30, 2025.
- **IEEE CIS Distinguished Lecture** on “Harnessing artificial intelligence for healthcare”, *IEEE CIS Victorian*

Section, September 11, 2025.

- **Keynote talk** on “Artificial intelligence in healthcare”, at International Conference on Data Science, AI and Applications, Dhaka, Bangladesh, July 19, 2025.
- **Panel member** on “After 60 years, what is the future of fuzzy systems?”, at FUZZ-IEEE ’25, Reims, France, July 08, 2025.
- **Keynote talk** on “Artificial intelligence in healthcare”, at FUZZ-IEEE ’25, Reims, France, July 08, 2025.
- **Tutorial talk** on “Research Funding, Publishing, Mentoring: The three pillars of professional development in academia”, at FUZZ-IEEE ’25, Reims, France, July 06, 2025.
- **Keynote talk** on “Artificial intelligence in healthcare”, at Deep Learning Machine Learning Journal Club, Mayo Clinic, USA, March 10, 2025.
- **Invited talk** on “Artificial intelligence in healthcare”, at MnRI Colloquium, University of Minnesota, USA, March 07, 2025.
- **Panel member** in the “Women at ICPR” event, Kolkata, December 03, 2024.
- *Invited talk* on “Harnessing artificial intelligence for healthcare”, at The Institute of Cancer Research, London, U.K., June 05, 2024.
- *Professional Development Workshop* on “Other pieces of the puzzle: Research funding, publishing, mentoring”, at 22nd IFAC TECIS2024, May 29, 2024.
- *Invited talk* on “Harnessing artificial intelligence for healthcare”, at School of Computing, University of Glasgow, Scotland, U.K., May 28, 2024.
- *Keynote talk* on “Harnessing artificial intelligence for healthcare”, at IWAIA, Doha, Qatar, December 09, 2023.
- *Webinar* on “Harnessing artificial intelligence for healthcare”, Mongolian Society of Artificial Intelligence in Medicine, May 05, 2023.
- *Distinguished seminar talk* on “Harnessing artificial intelligence for healthcare”, at Johns Hopkins Institutes, Baltimore, USA, March 07, 2023.
- *Keynote talk* on “Harnessing artificial intelligence for healthcare”, at IWISCI, Changsha, China, February 27, 2023.
- *Keynote talk* on “Harnessing artificial intelligence for healthcare”, at Virginia Tech., Arlington, USA, February 22, 2023.
- *Keynote talk* on “Harnessing artificial intelligence for healthcare”, at ICCPR, Beijing, China, November 18, 2022.
- **Panel member** in “Data science and data use in science and innovation for agrifood systems”, October 19, 2022, FAO, Rome, Italy.
- **Invited talk** at CAETS 2022, *Engineering a better world: Breakthrough technologies for healthcare*, on “Intelligent analysis of biomedical images”, September 27, 2022, Versailles, France.
- **Invited talk** at Purdue University on “Intelligent biomedical image analysis”, March 25, 2022, USA.
- **Invited talk** at University of Iowa on “Intelligent biomedical image analysis”, March 10, 2022, USA.
- **Plenary talk** at Webinar on “Intelligent biomedical image analysis”, SUSTech, China, November 30, 2021.
- **Invited talk** at Webinar *Bridging the Gap between Data and Healthcare* on “Intelligent analysis of biomedical images”, October 22, 2021.
- **IEEE CIS Webinar** on “From learning to deep learning”, July 03, 2021.
- **IEEE CIS Webinar** on “Intelligent biomedical image analysis”, February 12, 2021.
- **Distinguished Keynote talk, Webinar** on “Intelligent analysis of brain images”, at STI 2020, December

19, 2020.

- **Plenary talk, Webinar** at ISDA 2020 on “Intelligent analysis of brain images”, December 12, 2020.
- **IEEE CIS Distinguished Lecture, Webinar** on “Intelligent biomedical image analysis”, at The 4th Deep Learning and AI Winter School, Asia Pacific Neural Network Society, IEEE-CIS Thailand/Western Australia/Indonesia Chapters, November 19, 2020, Thailand.
- **IEEE CIS Distinguished Lecture, Webinar** on “Intelligent biomedical image analysis”, *IEEE CIS Rio de Janeiro Chapter*, November 10, 2020, Brazil.
- *Invited talk* at Dept. of Radiology, University of Pennsylvania, USA on “Intelligent analysis of brain images”, February 27, 2020.
- *Invited talk* at Dept. of Computer Science, UC San Diego, USA on “Intelligent analysis of brain images”, February 3, 2020.
- **Fulbright Outreach Lecture** at California State University Northridge, USA on “From learning to deep learning” & “Intelligent Biomedical image analysis”, January 30–31, 2020.
- **IEEE CIS Distinguished Lecture** on “From learning to deep learning” and Press interview, at *Universidad Catolica San Pablo*, June 26, 2019, Arequipa, Peru.
- **IEEE CIS Distinguished Lecture** on “From learning to deep learning” & “Mining gene expressions using domain knowledge” at *University of Engineering and Technology*, June 24, 2019, Lima, Peru.
- **Panel member**, Summit Forum on “Research and Technological Innovation of Brain Science and Life Science”, The 3rd Overseas Academicians’ Qingdao Tour, May 30, 2019, Qingdao, China.
- *Invited talk* at Dept. of CSE, University of South Florida, Tampa, USA on “Intelligent analysis of brain images”, February 8, 2019.
- **Fulbright Outreach Lecture** at Leeward Community College, Pearl City, Honolulu, Hawaii, USA on “The art and culture of India: Journey over centuries”, January 31, 2019.
- *Invited talks* at Dept. of Computer Science, Meiji University, Kawasaki, Japan on “Learning using neural networks”, “Big data and its application to medicine”, and “Data mining using soft computing”, March 1, 7, 8, 2017.
- **IEEE CIS Distinguished Lecture** on “Hybridization with rough sets: Application to Bioinformatics and biomedical imagery” at *Autonomous University of Queretaro*, December 10, 2016, Queretaro, Mexico.
- **IEEE CIS Distinguished Lecture** on “Soft Computing: Excursion through fuzzy sets, neural networks, genetic algorithms, and rough sets” at *Autonomous University of Queretaro*, December 09, 2016, Queretaro, Mexico.
- **IEEE CIS Distinguished Lecture** on “Soft Computing: Excursion through fuzzy sets, neural networks, genetic algorithms, and rough sets” at *Pontifical Catholic University*, June 24, 2016, Rio de Janeiro, Brazil.
- *Invited talk* at IEEE ARGENCON Congress, Buenos Aires, Argentina on “Soft Computing: Excursion through fuzzy sets, neural networks, genetic algorithms, and rough sets”, June 17, 2016.
- **IEEE CIS Distinguished Lecture** on “Hybridization with rough sets” at *Universidad Tecnologica Nacional*, June 16, 2016, Buenos Aires, Argentina.
- **IEEE CIS Distinguished Lecture** on “Mining gene expressions using domain knowledge” at *Chinese Academy of Sciences*, January 04, 2016, Beijing, China.
- **IEEE CIS Distinguished Lecture** on “Hybridization with rough sets” at *Southwest Jiaotong University*, December 22, 2015, Chengdu, China.
- **IEEE CIS Distinguished Lecture** on “Soft Computing” at *University of Milan*, July 08, 2015, Milan, Italy.
- **IEEE CIS Distinguished Lecture** on “Soft Computing” at *DIBRIS, University of Genova*, July 06, 2015,

Genova, Italy.

- **IEEE CIS Distinguished Lecture** on “Hybridization with rough sets” at *Universita Mediterranea*, July 03, 2015, Reggio Calabria, Italy.
- **IEEE CIS Distinguished Lecture** on “Mining gene expressions using domain knowledge” at *University of Salerno*, June 30, 2015, Fisciano, Italy.
- *Invited talk* at IEEE WIE Workshop, ICEEICT, Dhaka, Bangladesh on “Some Applications of Soft Computing”, May 22, 2015.
- *Dept. of Computer Science, Meiji University, Kawasaki, Japan*, on “Soft Computing in Pattern Recognition I & II”, January 07 & February 25, 2015.
- **IEEE CIS Distinguished Lecture** on “Hybridization with rough sets” at *University of Warsaw*, October 10, 2014, Warsaw, Poland.
- **IEEE CIS Distinguished Lecture** on “Soft Computing” at *AGH University of Science and Technology*, October 03, 2014, Krakow, Poland.
- **Panel member**, IEEE Women in Computational Intelligence, *IEEE WCCI 2012* on “Attracting and Retaining Women in the development of a Smart World”, June 12, 2012, Brisbane, Australia.
- *Clayton School of Information Technology, Monash University, Melbourne, Australia*, June 4, 2012.
- **Plenary talk** on “Hybridization with rough sets” at *IEEE WCCI*, July 18–23, 2010, Barcelona, Spain.
- *Cleveland State University, Ohio, USA*, October 2008.
- **Plenary talk** on “Soft Computing in Bioinformatics” at *IFKT 2008*, May 13, 2008, Chongqing, China.
- **Panel discussion** on “Knowledge Technology” at *IFKT 2008*, May 14, 2008, Chongqing, China.
- **Plenary talk** on “Some Applications of Soft Computing in Bioinformatics” at *WILF 2007*, July 9, 2007, Camogli-Genova, Italy.
- **Plenary talk** on “Hybrid Rough Set Methods in Data Mining” at *JRS07*, May 15, 2007, Toronto, Canada.
- *College of Information Engineering, Zhejiang University of Technology, Hangzhou, China*, May 2008.
- *Dept. of Information Sciences, National University of Singapore*, May 2005.
- *Dept. of Electrical & Computer Engineering, University of Calgary, Canada*, November 2004.
- *Dept. of Electrical & Computer Engineering, University of Alberta, Edmonton, Canada*, November 2004.
- *Dept. of Informatics, University of Valladolid, Spain*, October 2003.
- *Dept. of Computer Science, Aalborg University Esbjerg, Denmark*, October 2003.
- *Dept. of Computer Science, Aalborg University Esbjerg, Denmark*, May 2002.
- *Dept. of Software and Information Science, Iwate Prefectural University, Japan*, July 1999.
- *Dept. of Computer Science, Meiji University, Kawasaki, Japan*, May and June 1999.
- *Kyushu Institute of Technology, Tobata, Japan*, October 1996.
- *International Centre for Pure and Applied Mathematics, Nice, France*, July 1996.
- *Universitaet der Bundeswehr Muenchen, Germany*, December 1993.
- *European Laboratory of Intelligent Techniques Engineering (ELITE) Aachen, Germany*, May 1993.

INVITED LECTURES DELIVERED IN INDIA

- *Keynote lecture* on “Artificial Intelligence in Healthcare”, at CICBA, Univ. of Gour Banga, Malda, September 10, 2026.
- *Keynote lecture* on “Harnessing artificial intelligence for healthcare”, at NCVPRIPG, Jaipur, July 23, 2026.

- *Invited lecture* on “Artificial Intelligence in Healthcare”, 37th Mid-Year Meeting of Indian Academy of Sciences, Bangalore, July 04, 2026.
- *Keynote talk* on “Artificial Intelligence in Healthcare”, IIC of Univ. of Calcutta & Heritage Institute of Technology, Research Conclave, June 19, 2026.
- **Plenary talk** on “Artificial Intelligence in Healthcare”, IEEE CIS Summer School, IIT Patna, June 05, 2026.
- *Research talk* on “Artificial Intelligence in Healthcare”, INAE Kharagpur Chapter Lecture Series, IIT Kharagpur, June 01, 2026.
- *Invited talk* on “Nuances of publishing scientific research”, FDP, Assam University, Silchar, Feb. 10, 2026.
- *Keynote lecture* on “Harnessing artificial intelligence for healthcare”, at AIHW 2025, Mahindra University, Hyderabad, November 27, 2025.
- *Motivational talk* on “Introduction to Artificial Intelligence”, at Hiralal Mazumdar Memorial College for Women, Kolkata, November 13, 2025.
- *Inaugural talk* on “From learning to deep learning”, at FDP, St. Thomas’ College of Engineering & Technology, Kolkata, June 23, 2025.
- *Inaugural talk* on “Role of Artificial Intelligence in Clinical Research”, at ATAL FDP, Thiagarajar College of Engineering, Madurai, February 17, 2025.
- *Invited talk* in *Lilavati’s Daughters* Lecture Series, on “Life is a Journey”, SOA University, Orissa, February 08, 2025.
- *Talk* on “From learning to deep learning”, IAP-WiSTEMM, SNBNCBS, Kolkata, February 01, 2025.
- *Keynote talk* on “From learning to deep learning”, at ATAL FDP, SMIT, Sikkim, January 21, 2025.
- *Keynote talk* on “Harnessing artificial intelligence for healthcare”, at IEEE CIS Winter School on Computational Intelligence and Generative AI, IIT Indore, January 08, 2025.
- *Plenary talk* on “Harnessing artificial intelligence for healthcare”, at RTEOp Workshop, IIST, Kolkata, January 05, 2025.
- *Keynote talk* on “Harnessing artificial intelligence for healthcare”, at IEEE CIS Inaugural Workshop on Women in AI, IIT Indore, January 22, 2024.
- *Keynote talk* on “Harnessing artificial intelligence for healthcare”, at International Conference on Knowledge for Sustainable Development, Univ. of Hyderabad, January 19, 2024.
- *Keynote talk* on “From learning to deep learning”, at FDP, Netaji Subhash Engineering College, Kolkata, January 10, 2024.
- *Keynote talk* on “Harnessing artificial intelligence for healthcare”, CVIP 2023, IIT Jammu, Nov. 04, 2023.
- *Tutorial talk* on “Other pieces of the puzzle: Research funding, publishing, mentoring”, 3rd IEEE ICET, September 21, 2023.
- *Intl. Women in Engineering Day Lecture*, “Life is a Journey”, IEEE WIE Bhubaneswar, June 16, 2023.
- *7th John McCarthy Memorial Lecture* on “Harnessing artificial intelligence for healthcare”, IEEE CIS chapter, IEEE Hyderabad Section, December 16, 2022.
- *Invited talk*, “Harnessing artificial intelligence for healthcare”, at IEEE Vizag Bay Section, Dec. 14, 2022.
- *Plenary talk* on “Harnessing artificial intelligence for healthcare”, ICONIP, IIT Indore, November 23, 2022.
- *Keynote talk* on “Harnessing artificial intelligence for healthcare”, at NaSCoVIP, Rajkot, Gujarat, November 11, 2022.
- *Invited talk* on “Harnessing artificial intelligence for healthcare”, at ASET Colloquium, TIFR, Mumbai, September 09, 2022.
- *Invited talk* on “Leadership in the age of AI and ML”, at Amrit Sangam Conclave – INS Shivaji, Lonavala,

August 10, 2022.

- **Keynote talk** on “Intelligent biomedical image analysis”, at IEEE International Symposium on Biomedical Engineering, March 29, 2022, Kolkata.
- *Keynote Lecture, Webinar* “From learning to deep learning”, IEEE SPS Student Branch Inauguration, Meghnad Saha Institute of Technology, April 24, 2021.
- **IEEE CIS Distinguished Lecture, Webinar** on “Intelligent biomedical image analysis”, *IEEE CIS Hyderabad Chapter*, April 10, 2021.
- *Webinar on International Women’s Day*, “From learning to deep learning”, IEEE WIE, IEEE Hyderabad & Kolkata Sections, March 8, 2021.
- *Expert Talk, Webinar* “From Learning to Deep Learning”, 2nd Research Conclave, NIT Meghalaya, February 28, 2021.
- *Keynote Lecture, Webinar* “Intelligent analysis of brain images”, 6th EAIT, CSI & Kalyani University, February 25, 2021.
- *Plenary Lecture, Webinar* “Intelligent analysis of brain images”, 5th ICDMAI, January 16, 2021.
- *Distinguished Lecture, Webinar* “From learning to deep learning”, AICTE STTP, Asansol Engineering College, January 12, 2021.
- *Keynote Lecture, Webinar* “Intelligent analysis of brain images”, 6th IEEE WIECON-ECE, Dec. 27, 2020.
- *Invited Lecture, Webinar* “Intelligent analysis of brain images”, Pearls in Clinical Neurology, Dec. 27, 2020.
- *Keynote Lecture, Webinar* “Intelligent analysis of brain images”, ISMI ’20, December 5, 2020.
- *Distinguished Keynote Lecture, Webinar* “Intelligent analysis of brain images”, CVIP ’20, Dec. 5, 2020.
- *Webinar* “From learning to deep learning”, IIST Shibpur, December 2, 2020.
- *Keynote Lecture, Webinar* “Intelligent analysis of brain images”, WIE Global Summit, IEEE Bangalore Section, November 5, 2020.
- *Distinguished Lecture Webinar* “From learning to deep learning”, IEEE EDS, Kolkata Sec., Oct. 10, 2020.
- *Invited Webinar* “Intelligent analysis of brain images”, IEEE Day, IEEE WIE Bhubaneswar, Oct. 5, 2020.
- *Invited Webinar* “Intelligent analysis of brain images”, ATAL FDP on ML and Applications, KIIT Bhubaneswar, October 2, 2020.
- *Keynote lecture, Webinar* “Intelligent analysis of brain images”, Intelligent Computing, Assam University Silchar, September 12, 2020.
- *Keynote lecture, Webinar* “Intelligent analysis of brain images”, Summer School on Signal Processing & ML, New Delhi, July 21, 2020.
- *Keynote lecture, Webinar* “Intelligent analysis of brain images”, IEMIS, Kolkata, July 2, 2020.
- *Invited talk* “From Learning to Deep Learning”, TEQUIP Short Term Course, NIT Durgapur, Nov. 12, 2019.
- *Keynote address* “From Learning to Deep Learning”, DoSIER, RCCIIT Kolkata, October 19, 2019.
- *Invited talk* on “Introduction to soft computing”, ISI-NIT Meghalaya North East School, Shillong, February 22, 2018.
- *Keynote lecture* on “Mining gene expressions using domain knowledge”, ISSIP 2017, Kolkata, November 01, 2017.
- *Keynote lecture*, “Mining gene expressions using domain knowledge”, ACN’17, Manipal, Sept. 13, 2017.
- *Panelist*, “Quality Challenges and Engineering Profession”, INAE Youth Conclave, Jaipur, Aug. 12, 2017.
- *Invited talk* on “Intelligent Biomedical Image Analysis”, FDP on Hybrid Computational Intelligence, RCCIIT Kolkata, July 20, 2017.
- *Invited talks* on “Hybridization in computational intelligence” and “Biomedical Image Analysis”, Nirma

University, Ahmedabad, July 1, 2017.

- *Invited talk* on “Mining gene expressions using domain knowledge”, MAKAUT seminar, GCECT Kolkata, March 28, 2017.
- *Invited talk* “From Learning to Deep Learning”, CICBA, Calcutta Business School, March 25, 2017.
- **Invited talk** on “AI in Computational Biology”, TEQUIP II Seminar, MAKAUT Kolkata, March 21, 2017.
- *Invited talk* on “Biomedical Image Analysis”, IEEE CIS Kolkata Chapter Symposium, Visva-Bharati University, Santiniketan, February 25, 2017.
- *Invited talk* on “Soft Computing and its Applications in Bioinformatics and Biomedical Imagery”, TEQUIP II Short Term Course, College of Engineering and Management, Kolaghat, January 24, 2017.
- *Invited talk* on “Biomedical Image Analysis”, TEQUIP Workshop on Recent Trends in Signal Processing, Jadavpur University, October 20, 2016.
- **Keynote lecture** on “Hybridization in computational intelligence”, IEEE Students’ Technology Symposium, Kharagpur, September 30, 2016.
- **Panel member**, IEEE WIE, IEEE TechSym 2016 on “Women: A Journey to Becoming a Frontrunner”, September 30, 2016, Kharagpur.
- **Invited talk** on “Hybridization with rough sets”, IEEE CIS Winter School, IEEE Gujarat Section, Ahmedabad, March 3, 2016.
- **Invited talk** on “Hybridization with rough sets”, Short Term Course, Indian School of Mines, Dhanbad, February 10, 2016.
- **Keynote Lecture** on “Hybridization with rough sets”, WCI-2015, Kochi, August 11, 2015.
- *Invited talk*, ISCA’15, South Asian University, New Delhi, March 27, 2015.
- *Invited talk*, SCA’14, JSS Academy, Noida, September 04, 2014.
- *Invited talks* “Soft computing for pattern recognition” and “Hybridization with rough sets”, South Asian University, New Delhi, September 04, 2014.
- **Keynote talk**, ICNSC-14, Vignan University, Andhra Pradesh, August 20, 2014.
- *Invited talk*, National Seminar, RCCIIT Kolkata, March 27, 2014.
- *Invited talk*, Workshop on Soft Computing, KIIT University, Bhubaneswar, October 28, 2013.
- **IEEE GOLD talk** “Soft Computing for Pattern Recognition”, FDP, GCECT Kolkata, August 31, 2013.
- Theme Meeting on Fuzzy and Interval based Uncertainty Modeling, NIT Rourkela and BRNS/DAE, on “Hybridization with Rough Sets”, July 19, 2013.
- **IEEE CIS** Hyderabad Section talk on “Hybridization with rough sets”, Univ. of Hyderabad, July 08, 2013.
- Advanced Faculty Training Program, CDAC Kolkata, on “Data Mining”, July 05, 2013.
- *Invited expert lecture*, International Conference on AI and Soft Computing, IIT Varanasi, Dec. 08, 2012.
- Guest Lecture “Computational Aspects of Bioinformatics”, IEEE Women in Intelligence Seminar, Hyderabad Section, August 13, 2011.
- **Keynote talk** and invited lectures, AICTE Staff Development Program on “Softcomputing in Bioinformatics”, Tripura Institute of Technology, Agartala, July 11–12, 2011.
- “Some Computational Intelligence Applications” at IIT Guwahati, March 28, 2011.
- National Conference on Trends in Machine Intelligence, Tezpur University, on “Computational Aspects of Bioinformatics”, March 25, 2011.
- Winter School on Soft Computing, Tezpur University, “Hybridization in Soft Computing”, Dec. 23, 2010.
- International Conf. on Systems in Medicine and Biology, IIT Kharagpur, on “Hybridization with Rough Sets”, December 16, 2010.

- IEEE Students' Technology Symposium, IIT Kharagpur, on "Soft Computing", April 3, 2010.
- Winter School on Bioinformatics, DST Nagaland, on "Microarray data analysis", March 11, 2010.
- Short-term course SPReAD-09, IIT Kharagpur, on "Applications of rough sets to bioinformatics", October 15, 2009.
- Faculty upgradation programme, CDAC Kolkata, on "Bioinformatics", August 27, 2009.
- International Workshop on Rough Sets, Fuzzy Sets and Soft Computing, University of Pune, July 7, 2009.
- IEEE WIE talk, UGC refresher course, Jadavpur University, June 24, 2009.
- MHRD refresher course on "Machine Learning and Soft Computing", NIT Warangal, May 25–26, 2009.
- First Indo-Japan Conference on Facial Expression Analysis, CDAC Kolkata, March 12, 2009.
- IEEE Workshop on Soft Computing, GCECT Kolkata, March 7, 2009.
- Workshop, NIT Silchar on "Soft Computing and Bioinformatics", December 18, 2008.
- Incom Seminar, Seacom Engineering College, Howrah, on "Pattern Recognition and Data Mining", November 8, 2008.
- DST Workshop on Data Mining and Data Warehousing, ISI Kolkata, September 15–16, 2008.
- MHRD-AICTE Summer School on Bioinformatics, NIT Durgapur, July 12, 2008.
- TEQUIP Seminar, Kalyani Government Engineering College, on "Bioinformatics and Soft Computing", April 30, 2008.
- **Tutorial talk** on "Artificial Neural Networks in Pattern Recognition", BESUS Howrah, January 7, 2008.
- National Seminar, University of Calcutta, on "Rough Sets in Pattern Recognition", March 21, 2007.
- Spring School on Soft Computing, ISI Kolkata, on "Rough set hybridizations", March 14, 2007.
- "Computational Aspects of Bioinformatics", ISI Kolkata, for bright high-school girl students, organized by IEEE WIE, January 29, 2007.
- International Symposium on Cognition and Recognition Technologies, PES School of Engineering, Bangalore, December 30, 2006.
- "Soft Computing" at West Bengal University of Technology, Kolkata, December 11, 2006.
- National Seminar on Data Mining, GCETT Serampore, July 14, 2006.
- "Data Mining" at RCC Institute of Information Technology, Kolkata, April 17, 2006.
- Winter School on Pattern Recognition for the Forensic Sciences, ISI Kolkata, February 1, 2006.
- Winter School on Pattern Recognition and Machine Intelligence, Tripura University, January 21, 2006.
- Winter School on Soft Computing, ISI Kolkata, on "Rough set hybridizations", January 13, 2006.
- **Inaugural talk** on "Emerging Trends and Developments in Bioinformatics", Dr. G. R. Damodaran College of Science, Coimbatore, January 3, 2006.
- "Applications of Soft Computing Techniques" at BESUS Howrah, July 7, 2005.
- "Rough Sets in Bioinformatics" at NIT Durgapur, May 17, 2005.
- "Computational Biology" at Indian School of Mines, Dhanbad, August 20, 2004.
- "Data Mining", IEEE GOLD Symposium, Jadavpur University, April 2, 2004.
- Spring School on Data Mining and Bioinformatics, SMIT Sikkim, March 23, 2004.
- Autumn School on Pattern Recognition and Data Mining, NEHU Shillong, September 2003.
- "Data Mining" at IIIT Kolkata, February 2003.
- "Data Mining" at Bengal Engineering College, July 18, 2003.
- Symposium on Information and Optimization, University of Calcutta, January 2002.
- CSI 2001 Annual Convention, Science City, Kolkata, November 2001.

- Winter School, Mizoram University, Aizawl, on “Hybrid Approaches to Data Mining”, November 2001.
- National Workshop, Tezpur University, on “Soft Computing Tools for Rule Generation”, September 2001.
- Spring School, Gauhati University, on “Soft Hybrid Systems”, March 2001.
- International Workshop on Soft Computing & Intelligent Systems, ISI Calcutta, on “Neuro-Fuzzy Approach to Pattern Classification, Inferencing, and Rule Generation”, January 1998.
- Vidyasagar University, Midnapore, on “Neuro-Fuzzy Computing”, March 1996.

PROFESSIONAL ACTIVITIES

Leadership and Membership

- *Member*, International Science Council National Committee of CODATA, 2026–2028.
- *Member*, Scientific Advisory Committee, NITheCS, 2025–2028.
- *Member*, Advisory Committee, DST-Centres for Policy Research, 2025–2028.
- *Member*, Mentors’ Group, IGIDR Mumbai, 2026–2031.
- *Chair*, IEEE Kolkata Section, 2021–2022.
- *Member*, Inter-Academy Panel for Women in STEMM, 2021–2024.
- *Member*, Diversity & Inclusion Group, CAETS, 2022 to date.
- *Member*, Equality, Diversity & Inclusion Group, IAPR, 2025 to date.
- *Vice Chair*, IEEE CIS Task Force on Fuzzy Sets, 2012–2019.
- *Chair* of IEEE CIS Chapter, Kolkata Section, 2017–2018.
- *Vice Chair* of IEEE Women in Computational Intelligence, 2010.
- *Vice Chair* of IEEE WIE, IEEE Calcutta Section, 2012–2014.
- *Treasurer* of IEEE WIE, IEEE Calcutta Section, 2008–2010.

Award and Fellow Committees

- *Member*, IEEE CIS Fellow Evaluation Committee, 2020–2023.
- *Member*, IEEE CIS Outstanding Organization Award Committee, 2019–2020.
- *Member*, IEEE Frank Rosenblatt Award Committee, 2018–2020.
- *Member*, IEEE CIS Senior Members Sub-Committee, 2016–2017.

Sectional and Governing Committees

- *Member*, Governing Council, INAE, 2022–2024.
- *Member*, VAJRA Selection Committee, SERB, DST, 2021–2024.
- *Member*, Sectional Committee II (Computer Engineering and IT), INAE, 2017–2022, 2026.
- *Member*, Sectional Committee V (Engineering Sciences), INSA, 2022–2024.
- *Member*, IEEE CIS Task Force on Machine Learning, 2010–2012.
- *Member*, IEEE CIS Task Force on Evolutionary Computer Vision and Image Processing, 2020–2022.
- *Steering Committee Member*, International Rough Set Society, 2010–2014.
- *Life Member*, Indian Unit for Pattern Recognition and Artificial Intelligence.

Editorial Service

- Founding Associate Editor of *Wiley Interdisciplinary Reviews: DMKD*, from 2008 to date.

- Senior Associate Editor of *Sadhana*, from 2025 to date.
- Associate Editor of *Proceedings of INSA*, from 2023 to date.
- Associate Editor of *Information Sciences*, 2013 to date.
- Associate Editor of *IEEE Transactions on Fuzzy Systems*, from 2025 to date.
- Associate Editor of *Neural Networks*, from 2025 to date.
- Associate Editor of *IEEE/ACM Trans. on Computational Biology and Bioinformatics*, from 2010 to date.
- Associate Editor of *Fundamenta Informaticae*, 2017–2022.
- Associate Editor of *Transactions of the INAE*, 2016–2021.
- Associate Editor of *Computers in Biology and Medicine*, from 2020 to date.
- Associate Editor of *SN Computer Science*, 2020–2023.

Expert and Advisory Roles

- Served as Member, Expert Committee for selection of HAG professors, Tezpur University, 2016.
- Served as DEC Member, IMPRINT Healthcare, Ministry of Health & Family Welfare, Govt. of India.
- Served as Expert Member, Extra Mural Research Funding, SERB, DST; DG Nominated Member, ESRC, CSIR.
- Serving as Member, Engineering Sciences Research Committee, CSIR.
- Serving as Member, Board of Studies at Dept. of CSE, Tezpur University; Dept. of IT, GCECT Kolkata; M.Sc. CS, Surendranath College.
- Serving/Served as PhD Thesis Examiner at IIT Delhi; IIT Kharagpur; NIT Warangal; NIT Rourkela; Tezpur University; University of Calcutta; Jadavpur University; ISM Dhanbad; Visva-Bharati University; IISc Bangalore; University of Delhi; DCE; IEST Shibpur; VTU; Monash University, Australia; Aalborg University Esbjerg, Denmark.
- Evaluated Research proposals submitted to the Israel Science Foundation; DST; Indo-US Science & Technology Forum; SERB.
- Served as Jury Member for the Rise Prize on Driverless Cars, Mahindra and Mahindra, 2015–2016.
- Serving as Jury Member for the ACM Early Career Research Award, from 2024 to date.
- Served as Consultant to Videonetics Technology Pvt. Ltd., Kolkata, 2017–2019.
- Served as expert for BRNS, BARC, DAE, Govt. of India, 2013–2015.
- Served as Member, Selection Committee of Kalyani University; NIT Durgapur; IIT Kharagpur; IIIT Guwahati.

LIST OF PUBLICATIONS

Summary of publications	h-index = 49, i10-index = 120
Authored books published/accepted	3
Edited volumes published	16
Guest edited special issue of journal	5
Patents issued/pending	5
Papers published/accepted in journals (or chapters in books)	166
Papers communicated	9

(a) Books and Journal Special Issues**Authored Books**

1. S. Mitra, S. Datta, T. Perkins and G. Michailidis, *Introduction to Machine Learning and Bioinformatics*, Chapman & Hall/CRC Press, ISBN 978-1584886822, 2008.
2. S. Mitra and T. Acharya, *Data Mining: Multimedia, Soft Computing, and Bioinformatics*, New York: John Wiley, ISBN 0-471-46054-0, 2003.
3. S. K. Pal and S. Mitra, *Neuro-Fuzzy Pattern Recognition: Methods in Soft Computing*, New York: John Wiley, ISBN 0-471-34844-9, 1999. (Foreword written by Prof. Lotfi A. Zadeh)

Edited Volumes

1. S. Mitra, S. Saha, et al. (Eds.), *11th International Conference on Pattern Recognition and Machine Intelligence (PReMI 2025)*, LNCS Vol. 16357-16358, Springer Nature, Delhi, India, 2026.
2. M. Paprzycki, S. M. Thampi, S. Mitra, L. Trajkovic, E.-S. M. El-Alfy (Eds.), *Intelligent Systems, Technologies and Applications 2020*, Springer Nature, Singapore, 2021.
3. S. M. Thampi, L. Trajkovic, S. Mitra, P. Nagabhushan, E.-S. El-Alfy, Z. Bojkovic, D. Mishra (Eds.), *Intelligent Systems Technologies and Applications 2019*, AISC vol. 1148, Springer Nature, 2019.
4. S. Bhattacharyya, S. Mitra, P. Dutta (Eds.), *Intelligence Enabled Research*, AISC Vol. 1109, Springer Nature, 2019.
5. B. Deka, P. Maji, S. Mitra, D. K. Bhattacharyya, P. K. Bora, S. K. Pal (Eds.), *Pattern Recognition and Machine Intelligence*, LNCS 11941, Springer, 2019.
6. S. M. Thampi, L. Trajkovic, S. Mitra et al. (Eds.), *ISTA 2018*, AISC, Springer, 2018.
7. S. M. Thampi, S. Mitra et al. (Eds.), *ISTA 2017*, AISC, Springer, 2017.
8. J. M. C. Rodriguez, S. Mitra, S. M. Thampi, E.-S. El-Alfy (Eds.), *ISTA 2016*, AISC 530, Springer, 2016.
9. D. Ciucci, G. Wang, S. Mitra, W.-Z. Wu (Eds.), *RSKT 2015*, LNAI 9436, Springer, 2015.
10. P. Lingras, M. Wolski, C. Cornelis, S. Mitra, P. Wasilewski (Eds.), *RSKT 2013*, LNAI 8171, Springer, 2013.
11. J. Yao et al., S. Mitra et al. (Eds.), *RSCTC 2012*, LNCS 7413, Springer, 2012.
12. M. K. Kundu, S. Mitra, D. Mazumdar and S. K. Pal (Eds.), *PerMin 2012*, LNCS 7143, Springer, 2012.
13. A. Averkin, D. Ignatov, S. Mitra, J. Poelmans and V. Tarasov (Eds.), *SCKADD'11*, Moscow, 2011.
14. S. Chaudhury, S. Mitra, C. A. Murthy, P. S. Sastry and S. K. Pal (Eds.), *PReMI 2009*, LNCS 5909, Springer, 2009.
15. R. Baeza-Yates, J. Lang, S. Mitra, S. Parsons and G. Pasi (Eds.), *IAT 2009*, IEEE Computer Society Press, 2009.
16. F. Masulli, S. Mitra and G. Pasi (Eds.), *Applications of Fuzzy Sets Theory*, LNAI 4578, Springer, 2007.

Guest Edited Journal Special Issues

1. K. Ghosh and S. Mitra, Guest Editors, Special Issue of *Fundamenta Informaticae* on “Computational Intelligence and Brain Understanding”, Vol. 178, 2020.
2. P. N. Suganthan, S. Mitra and I. Tyukin, Guest Editors, Special Issue of *Applied Soft Computing* on “Non-Iterative Approaches in Learning”, Vol. 70, 2018.
3. S. Mitra and F. Masulli, Guest Editors, Special Issue of *Information Fusion* on “Natural Computing in Bioinformatics”, Vol. 10, No. 3, 2009.
4. S. Mitra and W. Pedrycz, Guest Editors, Special Issue of *Pattern Recognition* on “Bioinformatics”, Vol. 39, No. 12, 2006.

5. S. Mitra and H. L. Larsen, Guest Editors, Special Issue of *Fuzzy Sets and Systems* on “Web Mining using Soft Computing”, Vol. 148, No. 1, 2004.

(b) Patents

1. S. Mitra and P. Dutta, “System and Method for Effective Volumetric Segmentation of Medical Images involving Spatio-Spectral Components”, Patent Indian Application #202431005490, January 27, 2024.
2. S. Mitra and S. Pal Das, “Detection of Lung Diseases with Multimodal Imaging”, Patent Indian Application #202331070180, October 16, 2023.
3. S. Mitra, S. Pal Das and B. Uma Shankar, “Efficient Segmentation of Tumours from Lung CT”, Indian Patent No. 558671, January 24, 2025. US Application Publication No. US 2025/0061682 A1, February 20, 2025.
4. S. Mitra, C. A. Murthy and R. Das, “Extracting Gene-Gene Interactions from Gene Expression Data”, Patent No. US 8,478,541 B2, July 02, 2013.
5. S. Mitra, “Data Set Dimensionality Reduction Processes and Machines”, Patent US Application #12784403, October 06, 2011.

(c) Published Papers in Journals

1. S. Mitra and P. Dutta, “Frugal AI for accessible healthcare”, Thematic article on Artificial Intelligence, INAE Tech Frontier, Vol. 2, pp. 8-15, 2026.
2. P. Dutta and S. Mitra, “Mixed attention with deep supervision for delineation of COVID infected lung”, Springer Nature Computer Science, Vol. 7, 2026. <https://link.springer.com/article/10.1007/s42979-026-05205-z>
3. S. Dey, ..., and S. Mitra, “Managing Diabetic Retinopathy with deep learning: A data centric overview”, WIRE Data Mining and Knowledge Discovery, Vol. 16, e70113, 2026. <https://wires.onlinelibrary.wiley.com/doi/10.1002/widm.70113>
4. P. Mandal, ..., S. Mitra, ..., A. K. Dhara, “A lesion-aware detection framework for red lesions in retinal fundus images”, Journal of Imaging Informatics in Medicine, 2026. <https://doi.org/10.1007/s10278-026-02096-7>
5. R. Bhattacharyya, P. Dutta, and S. Mitra, “Adaptive Prototype-based Interpretable Grading of Prostate Cancer”, 2026. <http://arxiv.org/abs/2603.04947>
6. S. Dey, ..., and S. Mitra, “Weakly supervised patch annotation for improved screening of Diabetic Retinopathy”, 2026. <http://arxiv.org/abs/2603.03991>
7. R. Bhattacharyya, S. Pal, and S. Mitra, “Efficient self-supervised grading of Prostate cancer pathology”, IEEE Transactions on Systems, Man, and Cybernetics A: Systems, 2026.
8. R. Vaddi, ..., S. Mitra, ..., S. K. Roy, “From traditional to foundation models: A survey for land use and land cover hyperspectral image classification”, WIRE Data Mining and Knowledge Discovery, Vol. 15, e70049, 2025.
9. R. Bhattacharyya, S. Mitra, and S. Banerji, “Uncertainty modelling for Tumour Cellularity estimation in histopathology using deep learning”, IEEE Access, Vol. 13, pp. 179922–179931, 2025.
10. P. Dutta, S. Bose, S. K. Roy and S. Mitra, “Are Vision-xLSTM-embedded U-Nets Better at Segmenting Medical Images?”, Neural Networks, Vol. 192, pp. 107925, 2025.
11. P. Dutta, A. Maity and S. Mitra, “Prompt-based dynamic token pruning to guide Transformer attention”, 2025. <https://doi.org/10.48550/arXiv.2506.16369>
12. B. Ding, ..., T. Huang and S. Mitra, “Memristor-based selective convolutional circuit for high-density salt-

- and-pepper noise removal”, *IEEE Transactions on Circuits and Systems I: Regular Papers*, Vol. 72, pp. 3115–3125, 2025.
13. R. Rajalakshmi, ..., S. Mitra, ..., R. Raman, “Creating a Retinal Image Database to develop an Automated Screening Tool for Diabetic Retinopathy in India”, *Scientific Reports*, Vol. 15, 2025.
 14. P. Dutta, S. Mitra and S. K. Roy, “Wavelet-infused Convolution-Transformer for efficient segmentation in medical images”, *IEEE Transactions on Systems, Man, and Cybernetics A: Systems*, Vol. 55, pp. 3326–3337, 2025.
 15. S. Pal, S. Mitra, and B. Uma Shankar, “Weighted Deformable Network for efficient segmentation of lung tumors in CT”, *IEEE Transactions on Systems, Man, and Cybernetics A: Systems*, Vol. 55, pp. 898–909, 2025.
 16. S. Chakraborty, K. Mali and S. Mitra, “Affinity propagation in semi-supervised segmentation (APSS): A biomedical application”, *IEEE Transactions on Systems, Man and Cybernetics A: Systems*, Vol. 54, pp. 6023–6032, 2024.
 17. M. Tanveer, and ..., S. Mitra, et al., “Fuzzy deep learning for the diagnosis of Alzheimer’s Disease: Approaches and challenges”, *IEEE Transactions on Fuzzy Systems*, Vol. 32, pp. 5477–5492, 2024.
 18. A. Mani and S. Mitra, “Large minded reasoners for soft and hard cluster validation – Some directions”, *Annals of Computer and Information Sciences*, Vol. 36, pp. 1–8, 2023.
 19. P. Dutta and S. Mitra, “Mixed attention with deep supervision for delineation of COVID infection in lung CT”, 2022. medRxiv/arxiv.
 20. S. Pal, S. Mitra and B. Uma Shankar, “Collective intelligent strategy for improved segmentation of COVID-19 from CT”, *Expert Systems with Applications*, Vol. 235, January 2024, 121099.
 21. P. Dutta and S. Mitra, “Full-scale deeply supervised attention network for segmenting COVID-19 lesions”, 2022. medRxiv/arxiv.
 22. B. Dutta, P. Das, and S. Mitra, “A survey and classification of publicly available COVID-19 datasets”, *Annals of Library and Information Studies*, Vol. 69, pp. 208–220, 2022.
 23. S. Banerji and S. Mitra, “Deep learning in histopathology: A review”, *Wiley Interdisciplinary Research in Data Mining and Knowledge Discovery*, Vol. 12, e1439, 2022.
 24. S. Banerjee, S. Mitra, L. O. Hall, “Analysis of MRI biomarkers for brain cancer survival prediction”, arxiv: 2109.02785, 2021.
 25. S. Mitra, “Deep learning with radiogenomics towards personalized management of gliomas”, *IEEE Reviews in Biomedical Engineering*, Vol. 16, pp. 579–593, 2021.
 26. R. Kirtania, S. Banerjee, S. Laha, B. Uma Shankar, R. Chatterjee, and S. Mitra, “DeepSGP: Deep learning for gene selection and survival group prediction in Glioblastoma”, *Electronics*, Vol. 10, pp. 1463, 2021.
 27. S. Banerjee and S. Mitra, “Machine learning: An introduction”, *Current Indian Eye Research*, Vol. 7, pp. 40–48, 2020.
 28. M. Sardar, S. Banerjee and S. Mitra, “Iris segmentation using interactive deep learning”, *IEEE Access*, Vol. 8, pp. 219322–219330, 2020.
 29. S. Banerjee, S. Mitra, F. Masulli and S. Rovetta, “Glioma classification using deep radiomics”, *Springer Nature Computer Science*, Vol. 1, pp. 1–14, 2020.
 30. S. Basu, S. Mitra, and N. Saha, “Deep learning for screening COVID-19 using chest X-Ray images”, arXiv preprint arXiv:2004.10507, 2020.
 31. S. Banerjee and S. Mitra, “Novel volumetric sub-region segmentation in brain tumors”, *Frontiers in Computational Neuroscience*, Vol. 14, 2020.
 32. S. Bhadani, S. Mitra, and S. Banerjee, “Fuzzy volumetric delineation of brain tumor and survival predic-

- tion”, *Soft Computing*, Vol. 24, pp. 13115–13134, 2020.
33. R. Kirtania, S. Mitra and B. Uma Shankar, “Novel adaptive k-NN classifier for handling imbalance: Application to brain MRI”, *Intelligent Data Analysis*, Vol. 24, pp. 909–924, 2020.
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